Paper 1

Katharina Janke, **Carol Propper** (Imperial College London), Raffaella Sadun

The Role of Top Managers in the Public Sector: Evidence from the English NHS

Abstract:

Governments have reformed public services by adopting private sector governance models that grant top directors greater autonomy, responsibility for meeting key targets, and performance-based rewards. We examine a central plank of this approach--that directors can impact the organizations they run--in the context of English public hospitals, complex organizations with multi-million turnover. Our findings reveal little evidence that top directors affect hospital production, although pay differentials suggest they are perceived as distinct by the market. The results question the effectiveness of blindly mimicking the private sector to bring about improvements in public sector performance.

Paper 2

Jiaowei Gong, Chuanchuan Zhang, **Xuan Zhang** (Singapore Management University)

Heterogeneous Responses to Changes in Physicians' Financial Incentives: The Role of Expertise, Connection, and Rank of Patients

Abstract:

It is well known that physicians respond to financial incentives, which can distort patients' health care utilization. However, it is less known that how patient characteristics affect physicians' decision-making. We make use of a natural experiment arising from a drug markup reduction policy to investigate how physicians respond to financial incentives differentially with expert and non-expert patients. With 100% inpatient claims from a Chinese city, we first document that the policy reduces drug utilization while increases utilization of other forms of care, leading to higher total costs with no improvement in health outcomes. However, such distortion in care is almost solely borne by non-expert patients. Compared to non-experts, different-hospital expert patients have 11% lower costs, and same-hospital expert patients have 21% lower costs. Furthermore, same-hospital higher-ranked expert patients have the lowest costs, 28% lower than non-experts. This indicates that expertise, connection, and rank (conditional on connection) play almost equal roles in ensuring efficient care in China.

Paper 3

Kazuki Tomioka (Australian National University)

Life-cycle Implications of Latent Health Type Learning

Abstract:

Life-cycle models that feature health risk and latent health type implicitly assume that agents are equipped with the knowledge about their type. In this paper, we study the life-cycle decisions and welfare implications of a relaxation to this assumption by introducing type uncertainty for agents, but allow them to resolve it via Bayesian updating of beliefs. We develop a type learning mechanism and document its properties. Then, we embed the type learning mechanism into life-cycle model that features health risk to study the quantitative implications on the life-cycle profiles and welfare of agents facing type uncertainty. When the model is solved numerically using the estimated type-dependent transition probabilities of U.S. high school graduates, our simulation results show that: (i) most agents concentrate their beliefs toward true type within their lifetime, thereby resolving type uncertainty on average by approximately 80% based on a measure of conditional entropy, and (ii) type uncertainty introduces an additional source of heterogeneity in decisions of agents that ultimately affect life-cycle profiles of agents asymmetrically dependent on their type. Overall, our welfare analyses indicate that the lack of knowledge about their type is costly for agents and can amount to approximately 3% of lifetime consumption.

Paper 4

Raphaël Langevin (McGill University)

Policy Learning with Observational Data : The Case of Hepatitis C Treatment for HIV/HCV Co-Infected Patients

Abstract:

Decision-makers often must select a single option from a finite set of alternatives: physicians choose a medical treatment, investors select a risk level for their portfolio, and insurers set a premium for an insurance policy. In the hope of achieving better outcomes, policymakers sometimes provide policy rules or guidelines to direct such decisions. In this paper, I show how to design an optimal policy rule using observational data under relatively weak assumptions about the underlying structure of the heterogeneous target population. Consistent estimation of conditional average treatment effects is performed via a weighted K-means algorithm, assuming that the outcome model is correctly specified within each group of homogeneous observations. Feasible optimal policy rules are implemented through finite-depth decision trees under both perfect and imperfect adherence to treatment. This methodology is applied to the case of treatment choice for Hepatitis C (HepC) in patients co-infected with the human immunodeficiency virus (HIV) and the HepC virus (HCV), a setting where there is no uniform guideline regarding modern pharmaceutical treatment options. Estimation results show that the Epclusa treatment regimen is weakly dominated by the other treatment options in the absence of budget/cost constraints. Overall, optimal treatment allocation depends on a finite subset of observed patient characteristics and the policymaker's willingness-to-pay. Improved guideline recommendations can be easily derived from the proposed methodology while still accounting for contextual information obtained by prescribing physicians.

Paper 5

Johannes Cordier (University of St. Gallen)

Optimizing Patient Placement in Normal Care Units: An Instrumental Causal Forest Approach Minimizing Mortality

Abstract:

Effective patient placement in normal care units (NCUs) is essential for optimizing clinical outcomes and resource utilization. This study examines the impact of NCU placement on in-hospital mortality using administrative data from Swiss university hospitals. Employing an instrumental variable causal forest approach, we estimate heterogeneous treatment effects while addressing selection bias through exogenous variation in the daily number of emergency admissions as an instrument. Our findings highlight a trade-off between NCU specialization and utilization. To address this, we propose a minimax regret policy framework that optimizes patient placement by minimizing worst-case regret. The policy reduces mortality, balances NCU busyness, and maintains welfare metrics without requiring additional hospital capacity.

Paper 6

Yaying Zhou (University of Queensland)

In Sickness and in Health Insurance: Gender in Household Benefit Plan Choice

Abstract:

I document that households in the United States are more likely to choose health plans offered by the husband's employer rather than the wife's. This gap may be attributed to gender disparities in employment status, plan quality, or an inherent gender effect. Using a novel identification strategy that holds plan quality and employment status fixed, I find that the gender effect increases the likelihood of selecting the husband's plan by 6.3%. By estimating a structural model of household health insurance choices, I quantify that the gender effect results in an average loss of $226 per household per year.

Paper 7

Priyanka Sarda Tadikonda (Good Business Lab)

Birth Endowments and Intrahousehold Resource Allocation: Structural Estimates from a Collective Household Model

Abstract:

This paper investigates how parents allocate household consumption resources in response to children's initial birth endowments, specifically examining whether they compensate for or reinforce endowment differences. Departing from the focus on traditional human capital investments, this study uses a structural collective household model to estimate children's resource shares, the fraction of household expenditure consumed by each child. The analysis leverages exogenous variation in birth endowments due to exposure to in utero drought shock, using primary survey data in southern India. The findings suggest that parents exhibit compensatory behavior, allocating a larger share of household consumption to children born under adverse weather conditions. This is observed both when comparing households with different proportions of in utero drought-exposed children and directly between exposed and nonexposed siblings within the same household. Furthermore, the study demonstrates that individual child poverty rates are significantly higher among siblings who were not exposed to drought in utero in households where both groups are present. This highlights the importance of considering intra-household inequality and the long-term welfare implications of early life shocks for all children in the household.

Paper 8

Lena Janys, **Jan Kabátek** (University of Melbourne), Bettina Siflinger

Price of Care, Cost of Growth: Unraveling the Causal Effect of Childcare Utilization on Child Mental Health and Educational Development in the Netherlands

Abstract:

In this paper, we estimate the causal effect of daycare on children's mental health and schooling outcomes in the Netherlands. We use a very strong and policy-relevant instrument that exploits frequent changes in government reimbursement schemes for childcare prices that induce variation in expected costs over both time and province of residence. To control for the possible endogeneity in expected childcare costs, we employ a simulated instrument approach as in Borusyak & Hull (2020). We find that parents are highly price-sensitive and react to price changes both by reducing hours of childcare and by deferring entry to childcare. Our results imply that daycare attendance leads to more mental health diagnoses for both the intensive and extensive margin. We also find that daycare attendance causes higher test score ranks at age 12, but the intensive margin is negative, implying that more daycare is not always better in terms of cognitive outcomes.

Paper 9

Meiping Aggie Sun (Fordham University), Yiying Yang

Long-Term and Multi-Generational Impacts of Skilled Birth Attendance

Abstract:

This paper examines the long-term and multi-generational benefits of skilled birth attendance (SBA), which involves having a trained midwife or doctor present at delivery to safely perform normal deliveries using aseptic techniques and provide first-line emergency obstetric care. Using data on the county-by-county rollout of SBA in China from the 1930s to the 1970s, our research first demonstrates that the SBA reform substantially reduced neonatal mortality. We then show that exposure to skilled delivery during birth leads to a 1.5% increase in adult income. Moreover, we discovered that the benefits of exposure to SBA in previous generations extend to subsequent offspring. Children with at least one parent who experienced SBA have a 2.6% higher monthly income in adulthood than those whose parents did not have access to SBA. This effect is more pronounced when the mother, rather than the father, was exposed to SBA. We also present evidence of several underlying mechanisms, including improved physical and mental health, better educational outcomes, and enhanced cognitive abilities. Our findings indicate that having skilled health professionals attend childbirths can result in significant long-term and multi-generational benefits.

Paper 10

Albert Park, Yasuyuki Sawada, Menghan Shen, Heng Wang, Sangui Wang, **Ze Wang**
(University of Tokyo)

Mental Disorder, Altruism, and Empathy: Experimental Evidence from Middle School Students in the Aftermath of a Disaster

Abstract:

This paper examines the impact of having a mentally disordered peer on middle school students' social preferences using a natural experimental setting in the aftermath of the 2008 Sichuan earthquake in China. Using random classroom assignments, height-based seating arrangements, and lab-in-the-field experiments such as dictator and public goods games, the study has found that having a disabled peer significantly enhances altruistic behavior, driven largely by empathy among students with shared traumatic experiences. These findings highlight how peer effects in post-disaster contexts foster social cohesion and prosocial behaviors, reflecting a self-recovery mechanism inherent in human nature that may mitigate secondary trauma and improve welfare.

Paper 11

Makiko Omura (Meiji Gakuin University)

Assessing Peer Effects in Healthy Habit Formation: Insights from a Skill-Based Health Education Intervention in Bangladesh

Abstract:

This study investigates whether and how peer effects influence the adoption of healthy habits among primary school children, using data from a cluster randomized-controlled trial (RCT) of a skill-based health education (SBHE) intervention in rural Bangladesh. Without direct network data, we construct peer-effect measures based on classmates' baseline adoption ratios of health behaviors—handwashing, dentalcare, and shoe-wearing—and estimate their effects using mixed-effects models. Results reveal strong non-linear peer dynamics: handwashing and dentalcare practices show U-shaped relationships, with greater behavioral improvements occurring in both low- and high-peer-adoption environments. Treatment-peer-effect interactions are positive and significant for these practices, indicating that peer contexts amplify the intervention's effectiveness. However, substantial heterogeneity exists—particularly in dentalcare—where a subgroup of pupils with lower socioeconomic status exhibited no measurable peer or treatment effects. In contrast, shoe-wearing, with high baseline adoption, showed limited responsiveness, likely due to ceiling effects. These findings underscore that peer effects in health behavior change are neither uniform nor linear, and that tailoring interventions based on initial peer adoption levels may enhance impact.

Paper 12

Toshiaki Iizuka, Junya Kawamura, **Hitoshi Shigeoka** (The University of Tokyo)

Two Inefficiencies of Self-Selection: Evidence from Health Care

Abstract:

Self-selection into social programs can lead to socially excessive or insufficient participation. We propose a framework to detect and address these inefficiencies, applying it to diabetes care, where individuals above a biomarker threshold receive nudges to seek care. Crossing the threshold increases healthcare utilization and improves health outcomes. However, those who opt into care—both compliers and beyond-compliers—are generally healthier and benefit less, indicating reverse selection on gains. Targeting based on observable characteristics reduces excessive participation and improves welfare, while outreach to individuals reluctant to seek care despite high potential benefits mitigates insufficient participation and may further raise welfare.

Paper 13

David Johnston, Rachel Knott, **Ashani Ranmalie Abayasekara** (Monash University)

Mental health and differential belief updating: Evidence from unemployment shocks

Abstract:

Mental health conditions like anxiety and depression are widespread, yet their effects on information processing and decision-making are understudied. This paper examines how individuals with different mental health statuses update their perceptions of job security and expectations of job loss in response to changes in the unemployment rate. People with poor mental health may update differently due to symptoms such as excessive worry, hopelessness, lack of energy, and cognitive limitations, including attention and memory issues. Using panel data and fixed-effects regression models, we identify a mental health gradient: individuals with poor mental health do not adjust their perceptions and expectations in response to new unemployment information, unlike others. We further investigate this difference through an online survey experiment. The results show that individuals with poor mental health are less attentive to economic information, though this differential updating disappears when they are directly presented with unemployment data and focus on it. Our findings support theories of rational inattention and mental gaps, suggesting that cognitive limitations associated with poor mental health reduce responsiveness to economic signals. These results have important implications for understanding how mental health disparities affect economic decision-making and labour market outcomes.

Paper 14

Aline Bütikofer, **Zichen Deng** (University of Amsterdam), Kjell G Salvanes

Moving to Cleaner Skies: Age-Specific Effects of Exposure to Pollution on Health and Human Capital

Abstract:

This paper investigates the long-term and age-specific consequences of early childhood exposure to pollution by exploiting the sharp decline in imported sulfur dioxide in Norway following the enactment of the 1979 Convention on Long-Range Transboundary Air Pollution. We find that cohorts born after 1980 in municipalities experiencing significant reductions in pollution exposure saw greater improvements in education, earnings, and health outcomes at age 30 than those born in municipalities with minimal initial exposure. To further examine age-specific effects, we extend our analysis with a movers' design, leveraging asymmetrical relocations that generate sharp variations in exposure levels—--both in magnitude and direction—--across different ages. Our findings highlight the critical importance of early-life exposure, irrespective of its duration.

Paper 15

Congyuan Cui, Zhengwen Liu, **Yun Qiu** (Jinan University), Wen Wang

Crops, Insects, and Diseases: Unintended Consequences of Straw-burning Ban on Ecosystem and Human Health

Abstract:

This study shows that environmental policies can unintentionally disrupt ecosystems, affecting other species and, in turn, human health. Exploiting China's staggered straw-burning ban, we find a 50.2% increase in hospitalizations and a 173% rise in medical spending for insect-related diseases, offsetting about 11% of the health gains from cleaner air. We confirm that the ban reduced cropland fires, increased insect populations, and spurred public defensive investments against insect bites, suggesting that the policy improved insect habitats and thereby facilitated insect-borne diseases transmission. These effects largely disappear where straw recycling is effective, highlighting that complementary recycling policies can neutralize unintended harms and maximize pollution-control benefits.

Paper 16

Chiyuki Ikeda, **Masaru Nagashima** (IDE-JETRO)

HIV Prevention and ART Provision: Examination of Risk Compensation in the New Dawn

Abstract:

This study examines whether expanding access to antiretroviral therapy (ART) leads to reduced HIV preventive efforts in high-prevalence settings. We analyse the impacts of Botswana's pioneering nationwide free ART programme initiated in 2002, exploiting the gradual spatial expansion of ART-providing facilities in a difference-in-differences framework. Unlike previous studies documenting risk compensation, our empirical analysis shows that proximate ART availability did not significantly increase birth rates or unprotected sex among women aged 15-18 years. We then develop a parsimonious behavioural model, incorporating key features of ART such as improvement in welfare under the HIV-positive condition and reduction in HIV transmission from those on treatment. The key insight is that risk compensation depends on how the optimal level of preventive effort responds to ART welfare improvements under different HIV prevalence levels, explaining heterogeneous findings across contexts. We clarify conditions under which risk compensation effects diminish with higher baseline prevalence and show that free ART provision does not necessarily reduce preventive behaviours. Our findings suggest that the policy likely contributed to Botswana's reduction in HIV prevalence and incidence in later years.

Paper 17

Aurélien Baillon, Joseph Capuno, Aleli Kraft, Jenny Kudymowa, **Owen O'Donnell** (Erasmus University Rotterdam)

Leveraging Probability Distortion to Target Prevention: A Cardiovascular Screening Experiment in the Philippines

Abstract:

We test whether a conditional cash lottery (CCL) targets prevention on inverse S probability distortion types who underestimate prevention gains and overestimate lottery chances. In the Philippines, we randomly offer a CCL requiring screening for cardiovascular risk and elicit probability distortion and cardiovascular risk perceptions. Consistent with theory, inverse S types perceiving intermediate risk are 3 percentage points (60%) less likely to go for a check-up at baseline. The CCL offer increases the probability by 47 points, on average. Compliance is not significantly higher for inverse S types, but the estimate is higher for those also perceiving intermediate risk.

Paper P1

Yifeng Chen (Shanghai University of Finance and Economics), Yuanyuan Chen, Ya Li

Can Policy Change Habits?: How Chinese Ancient Salt Zoning Policies Cooked Up Regional Chili Preferences

Abstract:

Despite its significant sociocultural and biomedical implications, the formation of dietary preferences remains insufficiently understood. This paper explores one potential root: The historical institution. We examine the case of past Chinese salt zoning policies, which mandated counties to purchase salt from specified sources, resulting in substantial price disparities between neighboring regions. In response to elevated salt costs, residents sought alternative flavors, notably spiciness, to enhance their food taste. Employing a spatial regression discontinuity design, we find that restaurants in counties historically subjected to higher salt cost offer 3.4 percentage points (more percentage of spicy dishes on their menu nowadays, as well as a 1 percent point less percentage of salty dishes. We also explore the health consequences of this dietary shift: Consistent with substituting salt with spiciness, these regions show higher rates of digestive disorders but lower prevalence of cardiovascular diseases. Our findings underscore how historical institutions can cast persistent impact on local dietary habits with consequential health implications.

Paper P2

Michelle Sovinsky, **Liana Jacobi** (University of Melbourne), Alessandra Allocca, Tao Sun

More Joint Use? A Bundle Choice Model of Youth Multi-Substance Use and Legalization Implications

Abstract:

The majority of Americans favor nationwide marijuana legalization. The evolving legal environment affects how consumers make use decisions including co-use with legal substances. State-specific studies on legalization lack generalizability due to varying regulations and state spillover effects. Using Monitoring the Future data from 2004–2013, when recreational marijuana was illegal across states, we estimate a model of youth multi-substance use of marijuana, alcohol, and cigarettes (and combinations). Our framework captures bundle use, limited access, and persistence. We isolate the effects of legalization-related changes—access, enforcement, and quality—and simulate nationwide legalization under multi-substance tax regimes. Methodologically, we introduce the first Bayesian bundle-choice model that accounts for unobserved taste correlations and choice set limitations. We find that sin goods are complements, and legalization would increase youth use from 29% to 39%, primarily due to co-use with other sin goods. Coordinated tax increases on sin goods coupled with police enforcement can offset this rise. Our paper offers unexploited tools for designing effective youth-focused policies post-legalization.

Paper P3

Abhishek Dureja, **Tarun Jain** (Indian Institute of Management Ahmedabad)

Heat Stress and Hospitalization in India

Abstract:

We investigate the expected healthcare costs of climate change in developing countries in the context of tertiary healthcare in India. We find that an additional day in the 24-26C range each quarter increases the likelihood of tertiary care utilization by 0.13%, an additional day in the 26-28C range by 0.33%, and an additional day above 28C by 0.62%, compared to the reference category (22 – 24C). Public expenditure towards tertiary care increased by 0.29%, 0.74% and 1.39%, respectively. The impact of heat stress is strongest in nephrology and pediatrics, with no effects observed in neurology or cardiology.

Paper P4

Peyman Firouzi Naeim, **David W. Johnston** (Monash University), Maryam Naghsh Nejad

Balancing Work and Care: How Workplace Factors Can Mitigate the Gendered Impacts of Caregiving

Abstract:

Parental caregiving responsibilities can disrupt paid work, contributing to persistent gender inequalities in employment and earnings. Using Australian employer-employee linked data and a dynamic difference-in-differences approach, this study examines how workplace environments shape the impacts of caregiving shocks, focusing on working parents of children diagnosed with cancer. Mothers experience large and persistent earnings losses, while fathers' outcomes remain stable. Supportive firms and occupations, defined by high female representation in senior roles and lower work hour intensity, significantly reduce mothers' earnings penalties. These findings highlight the important role of workplace conditions in reducing gendered economic costs of caregiving.

Paper P5

Zhiyong Huang, **Fabrice Kämpfen** (University College Dublin)

Do Health Check-Ups for Seniors Improve Diagnosis and Management of Hypertension and Diabetes in China?

Abstract:

We estimate effects of a health check-up on non-communicable disease (NCD) diagnosis and management among Chinese adults aged 50 and older. Using five waves of the China Health and Retirement Longitudinal Study (CHARLS) spanning a period of 9 years and a fixed-effect instrumental variable (IV) framework, we exploit a policy that provided free health check-ups for those 65 and above as an IV for health check-ups to address the endogeneity between health check-ups and health characteristics. We estimate that a check-up increases the probability of diabetes diagnosis by 8.3 percentage points (p=0.042), particularly among females in rural areas (13.3 percentage points, p=0.063). However, there was no significant effect on hypertension diagnosis. Despite improving diabetes detection, check-ups do not significantly increase diabetes treatment, disease control, or provider recommendations. Similarly, while they increase health behavior recommendations for hypertension management --possibly because the policy helped integrate previously diagnosed individuals into formal care-- this does not translate into improved hypertension control. These findings highlight the importance of health check-ups in improving diagnosis for certain conditions but reveal critical gaps in follow-up care and disease management.

Paper P6

Luis Alonso-Armesto, Julio Cáceres-Delpiano, **Warn N. Lekfuangfu** (Universidad Carlos III de Madrid)

The Impact of Raising the Minimum Legal Drinking Age on Academic Achievement and Risky Behaviour: A Difference-in-Discontinuities Approach

Abstract:

This study examines the impact of increasing the Minimum Legal Drinking Age (from 16 to 18 years old) on the academic performance, substance use, and peer behaviours of teenagers. Using a difference-in-discontinuities design, we exploit regional MLDA reforms in Spain and PISA data to identify significant improvements in mathematics and science performance, particularly among male teenagers and those from lower socioeconomic backgrounds. A complementary analysis using data from the Survey on Drug Use in Secondary Education in Spain indicates that these academic gains coincide with reductions in alcohol consumption, intoxication, smoking, and marijuana use, suggesting a link between substance use and educational outcomes. Moreover, the reform led to less drinking and less use of illicit drugs within peer networks, highlighting the amplifying role of peer effects in policy impact.

Paper P7

Mingchen Liu (University of Glasgow)

Mapping Vaccination Rates Within and Across Countries in Sub-Saharan Africa, 1985—2021

Abstract:

This study constructs a novel unbalanced panel dataset covering 33 Sub-Saharan African countries from 1985 to 2021, at both the national and hexagonal levels. By examining childhood vaccination coverage at a fine-grained spatial level, the analysis uncovers critical insights that are often masked in traditional datasets: i) within- country disparities that are obscured by national averages; ii) Spatial patterns that individual level data cannot capture; and iii) Cross-border diffusion patterns, like west and south Africa. Moreover, the nearly four decades of data are divided into three time periods to maximize analytical clarity. Using two-way fixed effects re- gressions, the study explores how both demand and supply side factors influence vaccination uptake. Results show that regional road density, women's education, and access to radio and bicycles are positively associated with vaccination coverage. In contrast, areas with higher Muslim population shares tend to exhibit lower uptake rates. Interestingly, regions with lower levels of economic development—proxied by night-time light intensity—are associated with relatively higher vaccination rates, potentially reflecting both targeted outreach efforts and greater vaccine hesitancy among wealthier populations. However, when regressions are conducted at the country level, the correlations between economic development, religious composi- tion, access to media and transportation, and vaccination uptake are less evident.

Paper P8

Sara Muzzì (University of Milano-Bicocca), Paolo Berta, Stefan Verzillo

The Impact of Public Transport Strikes on Road Accidents and Healthcare Costs: Evidence from Lombardy, Italy

Abstract:

Strikes are a fundamental right that allow workers to protect their interests and negotiate better working conditions. However, when they involve essential public services such as transportation, they can generate unintended externalities affecting public safety and healthcare systems. This study examines the effects of public transport strikes on road accidents and healthcare costs in Lombardy, Italy, using counterfactual strategy and a staggered difference-in-differences approach applied to administrative data from 2014 to 2022.

The findings indicate that strike days lead to an increase in road accidents and injuries, likely due to greater traffic congestion caused by the shift from public to private transport. Although no significant effect on fatalities is observed, the economic burden on the healthcare system rises, with increased expenditures in emergency departments and hospitals. The impact on hospital admissions, however, remains inconclusive. These results highlight the need for policies such as enhanced traffic management, minimum service levels, and investment in alternative mobility solutions to mitigate the negative consequences of transport strikes while safeguarding the right to protest.

Paper P9

Aljoscha Janssen, **Meng-Chi Tang** (National Chung Cheng University)

Peer Effects in Drug Adoption

Abstract:

This paper uses the complete prescription records for one million Taiwanese patients from 1997 to 2011 and examines the slow drug adoption of newly introduced active ingredients. Our analysis reveals that, on average, these drugs require four to five years to reach substantial adoption across varied therapeutic classes. A mover-based instrumental variable approach exploits physician relocations to identify sizable peer effects: a one-percentage-point increase in peers' prescription rates raises a physician's probability of prescribing by 0.4 percentage points in ordinary least squares and up to 0.8 with the instrument. We further show that adoption speed is shaped by local hospital settings, patient complexity, and demographic alignment among physicians. At the macro level, markets dominated by clinics exhibit slower diffusion, while academic institutions accelerate uptake. These findings underscore the crucial role of physician networks in accelerating new treatments, highlighting how targeted interventions could improve timely and equitable access to innovative therapies.

Paper P10

Justus Vogel (University of St. Gallen), Johannes Cordier, Miodrag Filipovic

Causal Effects and Optimal Policy Learning for Intensive Care Unit Discharge Decisions to Solve Hospital Process Bottlenecks

Abstract:

Intensive care units (ICUs) operate with fixed capacities and face uncertainty such as demand variability, leading to demand-driven, early discharges to free up beds. These discharges can increase ICU readmission rates, negatively impacting patient outcomes and aggravating ICU bottleneck congestion. This study investigates how ICU discharge timing affects readmission risk, with the goal of developing policies that minimize ICU readmissions, managing demand variability and bed capacity. To define a binary treatment, we randomly assign hypothetical discharge days to patients, comparing these with actual discharge days to form intervention and control groups. We apply two causal machine learning techniques (generalized random forest, modified causal forest). Assuming unconfoundedness, we leverage observed patient data as sufficient covariates. For scenarios where unconfoundedness might fail, we discuss an IV approach with different instruments.

We further develop decision policies based on individualized average treatment effects (IATEs) to minimize individual patients' readmission risk. Our sample comprises 12,950 ICU stays (11,873 unique cases) from the Department of Surgical Intensive Medicine of the Cantonal Hospital of St. Gallen admitted between January 01, 2016, and December 31, 2023. We find that for 72% of our sample discharge at point in time t as compared to $t+1$ increases patients' readmission risk. Vice versa, 28% of cases profit from an earlier discharge in terms of readmission risk. The range of IATEs is quite large: For 91.4% of ICU stays, an earlier ICU discharge changes a patient's readmission risk between -0.05 and 0.05 percentage points (-55% and 55% relative change as compared to the average readmission rate of 9.04%).

To develop decision policies, we will exploit this treatment heterogeneity and rank patients according to their IATEs and compare IATEs of optimal and actual discharges across all decision points in our observation period. Finally, we outline how we will assess the potential reduction in readmissions and saved bed capacities under optimal policies in a simulation, offering actionable insights for ICU management.

We aim to provide a novel approach and blueprint for similar operations research and management science applications in data-rich environments.

Paper P11

Jiayi Wen (Xiamen University), Zixi Ye, Xuan Zhang

Health Dynamics and Reporting Bias at Retirement: An Analysis Using High-Frequency Data

Abstract:

This paper provides a novel approach and new empirical evidence to the debate on state-dependent reporting bias in subjective health measures. The central idea is that health operates as a stock, making abrupt shifts in self-reported health (SRH) following retirement more likely to reflect reporting bias than actual changes. To capture such shifts, our analysis integrates three key elements: (1) differentiating stock and flow outcomes based on classical theory of health; (2) leveraging identification strategy inspired by regression discontinuity design; (3) exploiting a unique high-frequency dataset on monthly health and retirement. Traditional estimates find a decline in SRH after retirement; however, this decline disappears within narrow windows, showing no evidence of state-dependent reporting bias. Our analysis on dynamics of stock and flow also offers new insights into the impacts of public health policies more broadly.